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10/825,335

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Tatsuki Nogiwa

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EXAMINER

KOCH, GEORGE R

ART UNIT

PAPER NUMBER

1791

MAIL DATE

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01/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 10/825,335 | Applicant(s) NOGIWA ET AL. | |
| | Examiner George R. Koch III | Art Unit 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4 and 6-28 is/are pending in the application.
- 4a) Of the above claim(s) 13-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6-12, 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 4, 6-12 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa (JP 2001-144430), Watanabe (JP01-198094), and Shimizu (JP 2002-374062).

As to claim 1, Ishikawa discloses a substrate support jig (see Figure 1) for removably holding a substrate (circuit board 4) when mounting electronic components on the substrate, comprising: a base member (base fixture 1) having a first surface and a second surface; and an adhesive material (weak adhesion layer 2) being made of a material able to adhere to the substrate, the adhesive material being provided on the first surface of the base member (see Figure 2). Ishikawa also discloses adhesive and non-adhesive regions on the first surface of the base member, but the adhesive region is contiguous within the non-adhesive region (see Figures 1-6), and the adhesive material is provided in a portion of the adhesive region other than the non-adhesive region.

Ishikawa does not disclose that the non-adhesive region is provided within the adhesive region. Ishikawa does not disclose that the base member has through holes penetrating therethrough, the through holes each having a first opening in the surface of the land section and a second opening on a side of the second surface.

However, Watanabe discloses a non-adhesive region is provided within the adhesive region. Watanabe utilizes dots of adhesive (item 6) with significant amounts of non-adhesive

regions. These non-adhesive regions reduce the amount of contact with the substrate and prevent oversticking. Additionally, Shimizu discloses a similar support jig as Ishikawa, and further discloses that the base member (called a conveyance pallet 104 - see Figures 1-4) has, through holes (items 108, see Figures 1-4) penetrating therethrough, the through holes each having a first opening in the surface of the land section and a second opening on a side of the second surface. Shimizu carries this element into their invention over from their prior art (see Figures 5 and 6), and discloses that these holes are used to align the flexible printed circuit substrate with the conveyance pallet (see paragraph 0004). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used such throughholes as in Shimizu in order to align the flexible printed circuit substrate with the base member. These through-holes are capable of being used for removing the substrate.

None of the references disclose that the non-adhesive region is enclosed by a region other than the non-adhesive region, of the adhesive region. However, this design is well within the skill of one in the art. The particular design or arrangement of adhesive and non-adhesive regions will be controlled by the particulars of the device being manufactured. Such particulars would be design choices within the skill of one in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the non-adhesive region is enclosed by a region other than the non-adhesive region, of the adhesive region as an element of design choice.

As to claim 4, Ishikawa discloses the adhesive layer is formed in such a shape that the substrate can be held at a non-lead section other than a lead section thereof.

As to claim 6, Ishikawa specifically discloses that the thickness is ideally 1.6 millimeters (see paragraph 0008, which disclose that the fixture base is made of glass and epoxy with a thickness of 1.6 millimeters). This range is substantially close to the claimed range of 2 to 4 mm. Therefore, Ishikawa makes obvious a distance a distance between the first surface and the second surface is selected from a range of 2 mm to 4 mm.

As to claim 7 and 27, Ishikawa discloses a distance between the main plane and the second surface is selected from a range of 0.1 mm to 0.6 mm. Ishikawa specifically discloses that the depth is 0.5 millimeters (see paragraph 0009). As to claim 27, this difference results in an adhesive material thickness of 0.1 to 0.6 mm.

As to claim 8, Ishikawa discloses the adhesive material is a silicon coke/mold material, i.e., silicon rubber, which the same as the disclosed adhesive material and therefore the hardness of the adhesive material is selected from a range of 20 to 50 Hs.

As to claim 9, Ishikawa discloses that the adhesive material has a heat resistance (that withstands temperatures exceeding a heating temperature at which a bonding material melts, the bonding material bonding the electronic components to the substrate.

As to claim 10, Ishikawa discloses the adhesive material is a silicon coke/mold material, i.e., silicon rubber, which the same as the disclosed adhesive material and therefore the material is effective at temperatures exceeding the heating temperature are 185 degrees Celsius and higher.

As to claim 11, Ishikawa discloses the adhesive material is a silicon coke/mold material, i.e., silicon rubber, which the same as the disclosed adhesive material and therefore has abrasion resistance.

As to claim 12, Ishikawa discloses that the base member has positioning marks (in the form of crevice 13, which mates with projected part 12 of the circuit board - see paragraph 0009) provided thereon and used to position the substrate.

As to claim 25, Ishikawa discloses that the adhesive region is formed in a depression in the base member, with the adhesive member inside the depression.

As to claim 26, the non-adhesive regions of Watanabe make obvious the islands.

As to claim 28, utilizing a slight protrusion of the adhesive material beyond the non-adhesive section is obvious. Such a protrusion would improve substrate contact and adhesion.

Response to Arguments

3. In response to applicant's argument that the prior art does not disclose that the through holes are for removing the substrate from the base member, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Application/Control Number:
10/825,335
Art Unit: 1791

Page 6

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can also be reached by E-mail at george.koch@uspto.gov [<mailto:george.koch@uspto.gov>](mailto:george.koch@uspto.gov) in accordance with MPEP 502.03. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/825,335
Art Unit: 1791

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


George R. Koch III
Primary Examiner
Art Unit 1734

George Koch
1/22/2008